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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/395,909	09/14/1999	ANDERS UVLIDEN	44559-00003	6655

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EXAMINER	
ARMSTRONG, ANGELA A	
ART UNIT	**PAPER NUMBER**
2654	

DATE MAILED: 12/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/395,909	UVLIDEN ET AL.	
	Examiner	Art Unit	
	Angela A. Armstrong	2654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 June 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,7-14,16-19 and 21-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,7-14,16-19,21-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

1. Claims 1-5, 7-14, 16-19, and 21-23 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The claims are directed to non-statutory subject matter because the methods merely manipulate an abstract idea without producing a useful, concrete and tangible result.

Claim Rejections – 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 2-3, 7-11, 13-14, 16-18, and 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adoul et al (US Patent No. 5,754,976) in view of Ubale et al (US Patent No. 5,778,335).

4. Regarding claims 2-3, 7-9, 13-14, 16-18, and 21-23, at col. 10, line 21 continuing to col. 12, line 10, Adoul et al discloses the basic principles of the Code-excited linear prediction (CELP) coding method, which is based on an analysis by synthesis method. Adoul et al teaches that the CELP synthesizer consists of long term predictor and short-term predictor and the output of the codebook is scaled by a gain and sent to the predictors. At col. 12, lines 24-24 and col. 14, line 27 continuing to col. 15, line 7, Adoul teaches that the search complexity is drastically reduced by restraining the subset of code vectors being searched to code vectors of which a certain number of non-zero amplitude pulses meet a pre-determined criteria, which reads on "selecting, for each signal block, a corresponding excitation codebook identification from a pre-determined, signal block independent sequence of codebook identifications." At col. 14, line 27 continuing to col. 15, line 7, Adoul teaches that the search complexity is drastically reduced by restraining the subset of code vectors being searched to code vectors of which a certain number of non-zero amplitude pulses meet a pre-determined criteria, which reads on "pseudo-random stepping or selection", since the pre-determined criteria changes, the set of code vectors which meet the criteria will change, and thus the selection is pseudo-random.

Adoul does not specifically teach the system provides for a multi-codebook CELP coding/decoding system. However, implementation of multiple codebooks in a CELP coding/decoding scheme was well known in the art.

In a similar field of endeavor, Ubale discloses a method and apparatus for efficient multiband CELP wideband speech and music coding and decoding. Specifically, at col. 6, lines 20-28 Ubale discloses implementation of multiple excitation codebooks in the CELP encoder,

and specifically suggests that use of more than one excitation codebook results in better speech and music quality.

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the CELP encoding teachings of Adoul to implement multiple excitation codebooks as taught by Ubale, for the purpose of achieving better audio quality from the encoder.

5. Regarding claims 10 and 11, Adoul et al discloses that the CELP coder is used to process blocks of speech col. 10, lines 21-22.

6. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adoul in view of Ubale, and further in view of Heidari et al (US Patent No. 6,055,496).

7. Regarding claims 4 and 5, Adoul and Ubale teach everything as claimed in claim 2(as dependent upon claim 7). Adoul and Ubale do not specifically teach of channel-protected parameters with error detection. However, implementation of channel-protected parameters was well known.

In a similar field of endeavor, Heidari teaches a CELP speech coder to improve overall system capacity (col. 2, lines 47-49, which implements channel coding that provides error protection (col. 2, lines 64-66).

Therefore, it would have been obvious to one of ordinary skill at the time of invention to modify the CELP coding system of Adoul and implement channel coding which provides error protection, as taught by Heidari et al, for the purpose of improving overall system capacity, as suggested by Heidari et al.

8. Claims 1-3, 8-14, and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adoul in view of Ubale, and further in view of Deller et al (1987, Discrete-Time Processing of Speech Signals).

9. Regarding claims 1-3, 8-9, 12-14, and 17-19, at col. 10, line 21 continuing to col. 12, line 10, Adoul et al discloses the basic principles of the Code-excited linear prediction (CELP) coding method, which is based on an analysis by synthesis method. Adoul et al teaches that the CELP synthesizer consists of long term predictor and short-term predictor and the output of the codebook is scaled by a gain and sent to the predictors. At col. 12, lines 24-24 and col. 14, line 27 continuing to col. 15, line 7, Adoul teaches that the search complexity is drastically reduced by restraining the subset of code vectors being searched to code vectors of which a certain number of non-zero amplitude pulses meet a pre-determined criteria, which reads on "selecting, for each signal block, a corresponding excitation codebook identification from a pre-determined, signal block independent sequence of codebook identifications."

Adoul does not specifically teach the system provides for a multi-codebook CELP coding/decoding system. However, implementation of multiple codebooks in a CELP coding/decoding scheme was well known in the art.

In a similar field of endeavor, Ubale discloses a method and apparatus for efficient multiband CELP wideband speech and music coding and decoding. Specifically, at col. 6, lines 20-28 Ubale discloses implementation of multiple excitation codebooks in the CELP encoder,

and specifically suggests that use of more than one excitation codebook results in better speech and music quality.

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the CELP encoding teachings of Adoul to implement multiple excitation codebooks as taught by Ubale, for the purpose of achieving better audio quality from the encoder.

Adoul does not specifically teach the codebook selector cyclically steps through the codebook identification. However, cyclically processing for selecting codebook identifications for speech coding was well known in the art.

In a similar field of endeavor, at pages 480-482, Deller et al discloses the basic principles of the Code-excited linear prediction (CELP) coding method, which is based on an analysis by synthesis method. Deller et al teaches that the CELP synthesizer consists of long term predictor and short-term predictor and the output of the codebook is scaled by a gain and sent to the predictors. Additionally, at page 481, Deller et al discloses that the system performs an exhaustive search for finding the sequence that minimizes the error energy, which reads on the cyclically stepping through the sets of codebooks.

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the coding system of Adoul to implement cyclically processing for selection from the codebook as suggested by Deller et al, for the purpose of finding the best sequence that minimizes the error energy, as also suggested by Deller et al.

Regarding claims 10 and 11, Adoul et al discloses that the CELP coder is used to process blocks of speech col. 10, lines 21-22.

10. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adoul in view of Ubale and Deller, and further in view of Heidari et al (US Patent No. 6,055,496).

11. Regarding claims 4 and 5, Adoul, Ubale, and Deller teach everything as claimed in claim 2 (as dependent upon claim 1). Adoul and Ubale do not specifically teach of channel-protected parameters with error detection. However, implementation of channel-protected parameters was well known.

In a similar field of endeavor, Heidari teaches a CELP speech coder to improve overall system capacity (col. 2, lines 47-49, which implements channel coding that provides error protection (col. 2, lines 64-66).

Therefore, it would have been obvious to one of ordinary skill at the time of invention to modify the CELP coding system of Adoul and implement channel coding which provides error protection, as taught by Heidari et al, for the purpose of improving overall system capacity, as suggested by Heidari et al.

Response to Arguments

12. Applicant's arguments filed June 21, 2005 have been fully considered but they are not persuasive.

Applicant argues neither Adoul nor Ubale teach "selecting, for each signal block, a corresponding excitation codebook identification from a pre-determined, signal block independent sequence of codebook identifications." The Examiner disagrees and argues Adoul discloses the basic principles of the Code-excited linear prediction (CELP) coding method, which is based on an analysis by synthesis method including that the CELP synthesizer consists

of long term predictor and short-term predictor and the output of the codebook is scaled by a gain and sent to the predictors. Specifically, Adoul teaches that the search complexity is drastically reduced by restraining the subset of code vectors being searched to code vectors of which a certain number of non-zero amplitude pulses meet a pre-determined criteria, which provides support for the limitation of "selecting, for each signal block, a corresponding excitation codebook identification from a pre-determined, signal block independent sequence of codebook identifications," since the system is capable of selecting the subset a-priori (col. 2, lines 22-23). Further, Ubale discloses an implementation of multiple excitation codebooks in the CELP encoder, and specifically suggests that use of more than one excitation codebook results in better speech and music quality. One of ordinary skill would recognize the advantages of modifying the CELP encoding teachings of Adoul to implement multiple excitation codebooks as taught by Ubale, to achieve improved speech and music quality, and thus the teachings of Adoul and Ubale provide support and motivation for the combination of the claim limitations.

In response to applicant's argument that Ubale teaches away from the combination, the test for obviousness is not that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). Thus, one of ordinary skill in the art would recognize the advantages of modifying the CELP encoding teachings of to implement multiple excitation codebooks as suggested by Ubale so as to achieve improved speech and music quality.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela A. Armstrong whose telephone number is 571-272-7598. The examiner can normally be reached on Monday-Thursday 11:30-8:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on 571-272-7602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Angela A Armstrong
Primary Examiner
Art Unit 2654

AAA
November 28, 2005